



U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

03-OSR-0300

Mr. J. P. Henschel, Project Director
Bechtel National, Inc.
2435 Stevens Center
Richland, Washington 99352

Dear Mr. Henschel:

CONTRACT NO. DE-AC27-01RV14136 – APPROVAL OF AUTHORIZATION BASIS
AMENDMENT REQUEST (ABAR) 24590-WTP-SE-ENS-03-050, REVISION 0, DELETION
OF TRAIN C

Reference: BNI letter from J. P. Henschel to R. J. Schepens, ORP, "Transmittal for Approval:
Authorization Basis Amendment Request 24590-WTP-SE-ENS-03-050, Revision
0, 'Deletion of Train C'," CCN-062213, dated July 2, 2003.

This letter approves the subject ABAR that Bechtel National, Inc. (BNI) provided to the U.S.
Department of Energy, Office of River Protection (ORP) on July 2, 2003 (Reference). The
ABAR proposed to delete one of the three emergency trains of electrical power (Train C),
associated structures, systems, and components, and building spaces.

Based on the information provided in the Reference and the attached Safety Evaluation Report,
the changes are acceptable as noted and comply with applicable laws, regulations, and River
Protection Project Waste Treatment and Immobilization Plant contractual requirements. There is
reasonable assurance that the health and safety of the public, the workers, and the environment
will not be adversely affected by these changes.

If you have any questions, please contact me, or your staff may call Lewis F. Miller, WTP Safety
Regulation Division, (509) 376-6817.

Sincerely,

Roy J. Schepens
Manager

OSR:WJP

Attachment

**Safety Evaluation Report (SER)
of Proposed Authorization Basis Amendment Request (ABAR)
24590-WTP-ABAR-ENS-03-050, Rev. 0
Preliminary Safety Analysis Report (PSAR)
for the River Protection Project Waste Treatment and Immobilization Plant (WTP)**

1.0 INTRODUCTION

This SER documents the U.S. Department of Energy, Office of River Protection (ORP) evaluation of changes proposed by Bechtel National, Inc. (the Contractor) concerning the deletion of one of the three emergency trains of electrical power (Train C), associated structures, systems, and components (SSC) and building spaces from the WTP authorization basis. By letter dated July 2, 2003,¹ the Contractor submitted a proposed amendment to the PSAR to effect this change. The Low Activity Waste (LAW) Facility does not receive power from the ITS electrical power system and is not affected.

The ABAR 24590-WTP-ABAR-ENS-03-050 submitted to ORP by the Contractor proposes to delete SSCs related to Train C of the ITS electrical power system. Deletion of Train C includes removal of the associated Train C mechanical, electrical, HVAC, Civil/Structural, fire protection and instrumentation and controls SSCs in Pretreatment (PT), High Level Waste (HLW), and Balance of Facility (BOF), and associated building spaces in BOF. Additionally, deletion of Train C reconfigured some of the remaining ITS loads based on two emergency trains of electrical power (Trains A and B) instead of three emergency trains. Train C is a redundant ITS electrical power system to Trains A and B; therefore, Train C is neither required to ensure that the radiological, nuclear, and process safety requirements are met, nor to ensure that adequate protection of the public, the workers, and the environment is provided. The amendment is required to correct the PT, HLW, BOF PSAR and Volume I of the PSAR to reflect the deletion of Train C.

2.0 BACKGROUND

The WTP authorization basis is the composite of information provided by a Contractor in response to radiological, nuclear, and process safety requirements that is the basis on which the ORP grants permission to perform regulated activities. The authorization basis includes that information requested by the Contractor for inclusion in the authorization basis and subsequently accepted by the ORP. The PSAR describes the analyzed safety basis for those facilities (safety envelope), demonstrates that the facility will perform and be operated such that the radiological, nuclear, and process safety requirements are met, and demonstrates adequate protection of the public, workers, and environment.

The PSAR is based on the preliminary design of the facilities and is part of the authorization basis for WTP construction. ORP authorized construction of the HLW building and selected

¹ BNI letter from R. F. Naventi to R. J. Schepens, ORP, "Transmittal for Approval: Authorization Basis Amendment Request 24590-WTP-ABAR-ENS-03-050, Revision 0, 'Deletion of Train C,'" CCN: 0062213, dated July 2, 2003.

portions of the BOF based on the facility safety basis documented in the PSAR on November 13, 2002,² and the PT building based on the facility safety basis documented in the PSAR on March 17, 2003.³

3.0 EVALUATION

The following subsections outline specific changes to the PSAR with respect to deletion of SSCs related to Train C of the ITS electrical power system. The reviewers evaluated the PSAR Volume I, Sections 2.8.1.1.2, 2.8.1.1.4, 2.8.2.5, and 2.8.3.11; PT PSAR, Sections 2.8.1, 2.8.2, 4.3.2.2, 4.3.2.3, 4.3.2.5.3, 4.3.10.2.1, 4.3.10.5, and 5.5.1; HLW PSAR, Sections 2.8.2, 4.3.12, 4.3.12.2, 4.3.12.5, 5.5.12, and Appendix A; BOF PSAR, Sections 2.4.2, 2.8.4, 2.8.5, 3.3.4, 3.3.3.5, 4.3.1.2, 4.3.3.2, 4.4.1.4, and 5.5.3; and the Contractor responses to HLW-PSAR Questions 007, 028, 029, 140, 155, 198, 199, 200, and 201, and PT-PSAR Questions 007 and 258 for the changes proposed by ABAR 24590-WTP-ABAR-ENS-03-050.

3.1 Proposed Changes to PSAR Volume I

The following subsections outline specific changes to the GI PSAR with respect to deletion of SSCs related to Train C of the ITS electrical power system.

3.1.1 Proposed Changes to PSAR Volume I, Section 2.8.1.1.2 Emergency Power Supply (4.16 kV)

Section 2.8.1.1.2, (page 2-73, paragraph 2, sentence 3) currently states in part:

“The emergency power system will consist of segregated feeder buses (A, B, and C) that are normally fed from the offsite power system (normal supply).”

The proposed amendment would change the text to read:

“The emergency power system will consist of segregated feeder buses (A and B) that are normally fed from the offsite power system (normal supply).”

Evaluation (acceptable): The proposed design change deletes segregated feeder bus C and transfers the loads served by Train C fed by segregated bus C to Trains A and B fed by segregated busses A and B respectively. The load capability of Trains A and B, including associated emergency diesel generators (EDG), will be increased to accommodate increased loads. This change is acceptable because Trains A and B fed by segregated feeder buses A and B meet redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards.

² ORP letter from R. J. Schepens to R. F. Naventi, BNI, “U.S. Department of Energy (DOE) Notice to Proceed with Construction Activities,” 02-OSR-0517, dated November 13, 2002.

³ ORP letter from R. J. Schepens to R. F. Naventi, BNI, “U.S. Department of Energy (DOE) Notice to Proceed with Pretreatment Construction Activities,” 03-OSR-0021, dated March 17, 2003.

The proposed changes to section PSAR Section 2.8.1.1.2 are acceptable because they are consistent with the design change as described above.

3.1.2 Proposed Changes to PSAR Volume I, Section 2.8.1.1.4 Uninterruptible Power Supply

Section 2.8.1.1.4 (page 2-74, paragraph 2, sentence 2) currently states in part:

“A minimum of two UPS systems will be provided per process building (one per load group, specifically, A and B) and three UPS systems in the ITS switchgear building (one per EDG).”

The proposed amendment would change the text to read:

“A minimum of two UPS systems will be provided per process building (one per load group, specifically, A and B) and two UPS systems in the ITS switchgear building (one per EDG).”

Evaluation (acceptable): The proposed change reduces the number of UPS systems in the ITS switchgear building from three to two. The reviewers identified that a third UPS in the ITS switchgear building intended for Train C controls is not required because the level of reliability required by SRD Safety Criterion 4.4-4, including its implementing codes and standards, is provided by the two remaining ITS switchgear building UPS (one per EDG).

3.1.3 Proposed Changes to PSAR Volume I, Section 2.8.2.5 Uninterruptible Power Supply

Section 2.8.2.5 (page 2-77, paragraph 1, sentence 1) currently states in part:

“Three separate buses (A, B, and C) are designated as part of the emergency power supply system.”

The proposed amendment would change the text to read:

“Two separate buses (A and B) are designated as part of the emergency power supply system.”

Evaluation (acceptable): The proposed change modifies the emergency power supply system to eliminate Train C, reducing three separate emergency power supply buses to two. This change acceptable because it implements the design change as described and evaluated in Section 3.1.1.

3.1.4 Proposed Changes to PSAR Volume I, Section 2.8.3.11 Uninterruptible Power Supply (EDG connection)

Section 2.8.3.11 (page 2-82, paragraph 2, sentences 1 and 2) currently states in part:

“Each EDG will be connected to source group A, B, or C bus via separate, medium voltage switchgear. The capacity to run a third diesel generator will be provided and will be common to both groups A, B, or C buses via a common switchgear.”

The proposed amendment would change the text to read:

“Each EDG will be connected to source group A, or B bus via separate, medium voltage switchgear.”

Evaluation (acceptable): This change to the PSAR is acceptable because it implements the design change as described and evaluated in Section 3.1.1.

3.2 Proposed Changes to PT PSAR

The following subsections outline specific changes to the PT PSAR with respect to deletion of SSCs related to Train C of the ITS electrical power system, redistribution of ITS electrical loads, and modification of the ITS electrical load as a result of the change from one 50% capacity C5V fan on each of the trains A, B, and C to two 50% capacity fans on each of the remaining Trains A and B.

3.2.1 Proposed Changes to PT PSAR, Section 2.8.1 Electrical Equipment Arrangement:

PT PSAR, Section 2.8.1 (paragraph 1, sentences 1 & 2, page 2-80, and paragraph 2, sentence 3, page 2-81) currently states in part:

“The PT facility electrical power distribution system is supplied from the BOF by two 13.8 kV feeders and three 4.16 kV feeders. The three 4.16 kV feeders are from busses supplied by offsite power and backed by emergency diesel generators.”

“The three 4.16 kV circuits backed by emergency diesel generators supply the process vessel vent system, C5V fans, and other equipment which is classified as ITS and requires emergency diesel backed power.”

The proposed amendment would change the text to read:

“The PT facility electrical power distribution system is supplied from the BOF by two 13.8 kV feeders and two 4.16 kV feeders. The two 4.16 kV feeders are from busses supplied by offsite power and backed by emergency diesel generators.”

“The two 4.16 kV circuits backed by emergency diesel generators supply the process vessel vent system, C5V fans, and other equipment which is classified as ITS and requires emergency diesel backed power.”

Evaluation (acceptable): The proposed change deletes Train C and modifies associated electrical equipment arrangements. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to PT PSAR Section 2.8.1 are acceptable because they are consistent with the design change as described above.

3.2.2 Proposed Changes to PT PSAR, Section 2.8.2 Emergency Electric Power

PT PSAR, Section 2.8.2 (paragraph 2, sentence 2, and paragraph 4, sentence 1, page 2-81) currently states in part:

“The emergency power system consists of three segregated 4.16 kV feeder buses that are normally fed from the offsite power system.”

“The three 4.16 kV emergency buses directly feed to three transformers/MCC lineups in the PT building, where the power is transformed to 480 V and distributed to three groups of ITS loads.”

The proposed amendment would change Section 2.8.2 to read:

“The emergency power system consists of two segregated 4.16 kV feeder buses that are normally fed from the offsite power system.”

“The two 4.16 kV emergency buses directly feed to two transformers/MCC lineups in the PT building, where the power is transformed to 480 V and distributed to two groups of ITS loads.”

Evaluation (acceptable): This change to the PSAR is acceptable because it implements the design change as described and evaluated in Section 3.2.1

3.2.3 Proposed Changes to PT PSAR, Section 4.3.2.2 System Description (exhaust fans):

PT PSAR, Section 4.3.2.2 (paragraph 1, sentences 2 and 3, page 4-4) currently states in part:

“The C5V exhaust system consists of three 50% capacity centrifugal fans. During normal operation two fans are operating; with the third fan starting automatically on detection of low flow.”

The proposed amendment would change the text to read:

“The C5V exhaust system consists of four 50% capacity centrifugal fans, configured in one fan pair per train. During normal operation one fan pair is operating; with the second fan pair in standby status.”

Evaluation (acceptable): The proposed change alters C5 ventilation due to deletion of Train C and modification of the fan capability per train. The reviewers determined that the change to the C5V exhaust system will not introduce new hazards or significantly increase existing hazards, and provide adequate safety because the ITS C5 ventilation system (Trains A and B) will continue to perform their safety function (C5 ventilation). This change is acceptable because it

meets the redundancy requirements of SRD Safety Criterion 4.1-1, including its implementing codes and standards.

3.2.4 Proposed Changes to PT PSAR, Section 4.3.2.3 Functional Requirements (exhaust fans)

PT PSAR, Section 4.3.2.3 (bullets 2 and 8, page 4-5) currently states in part:

“To ensure that the C5V system performs its credited safety function, the following functional requirements must be met:”

- “The C5V exhaust fan controls must automatically place the standby fan into operation upon detection of low flow from the operating fan.”
- “The C5V system must maintain negative pressures in C5 areas on loss of power, single fan failure, or design basis earthquake.”

The proposed amendment would change the text to read:

“To ensure that the C5V system performs its credited safety function, the following functional requirements must be met:”

- “The C5V exhaust fan controls must automatically place the standby fan pair into operation upon detection of low-low flow from the operating fan pair.”
- “The C5V system must maintain negative pressures in C5 areas on loss of power, fan failure, or design basis earthquake.”

Evaluation (acceptable): The proposed change alters C5 ventilation due to deletion of Train C and the corresponding 50% capacity C5V fan and adds a 50% capacity fan on each of the remaining Trains A and B. The C5V fan activation logic is correspondingly changed. A low-low flow detection will activate the standby pair to ensure minimum flow required for C5V ventilation to perform its safety function is maintained. This low-low flow level signal provides the same safety function previously provided by the low-flow signal. The change described in the second bullet above is editorial to reflect going from a single fan system to a double fan system and has no safety consequences. This change is acceptable because it meets the redundancy requirements described in SRD Safety Criterion 4.1-1, including its implementing codes and standards.

3.2.5 Proposed Changes to PT PSAR, Section 4.3.2.5.3 C5V Exhaust Fans

PT PSAR, Section 4.3.2.5.3 (paragraph 2, sentences 2, 3, and 5, page 4-7) currently states in part:

“The fan configuration includes three fans of 50% capacity each, with one fan in standby. When flow instrumentation detects that no fan is operating, an automatic switchover attempts to start the standby fan. The fans are provided with two sources of power, normal and alternate. The alternate power source provides power to each fan through an automatic transfer switch (ATS) device with connection to a dedicated emergency diesel generator (EDG) –backed SDC bus.”

The proposed amendment would change the text to read:

“The fan configuration includes four fans of 50% capacity each, with one fan pair per train. During normal operation, one fan pair is operating with the second fan pair in standby status. The fans are provided with two sources of power, normal and alternate. The alternate power source provides power to each fan pair through an automatic transfer switch (ATS) device with connection to a dedicated emergency diesel generator (EDG) – backed SDC bus.”

Evaluation (acceptable): The proposed change alters C5 ventilation due to deletion of Train C and the corresponding 50% capacity C5V fan and adds a 50% capacity fan on each of the remaining Trains A and B. The C5V fan activation logic is correspondingly changed. A low-low flow detection will activate the standby pair to ensure minimum flow required for C5V ventilation to performs its safety function is maintained. This change is acceptable because it meets the redundancy requirements described in SRD Safety Criterion 4.1-1, including its implementing codes and standards.

3.2.6 Proposed Changes to PT PSAR, Section 4.3.10.2.1 Safety Design Class Electrical Power System

PT PSAR, Section 4.3.10.2.1 (paragraph 1, sentence 1, page 4-22) currently states in part:

“SDC power in the PT facility is provided by three independent, 480 V AC, SDC motor control centers, (MCCs).”

The proposed amendment would change the text to read:

“SDC power in the PT facility is provided by two independent, 480 V AC, SDC motor control centers, (MCCs).”

Evaluation (acceptable): The proposed change deletes the SDC motor control center corresponding to ITS power Train C thus changing from three independent 480 V AC, SDC motor control centers to two. Loads carried by Train C are transferred to Trains A and B. Load carrying capability of Trains A and B is increased to accommodate the increased loads. Deletion of the third motor control center is acceptable because ITS Trains A and B meet the redundancy and other requirements for electrical power systems described in SRD Safety Criterion 4.4-4, including its implementing codes and standards.

3.2.7 Proposed Changes to PT PSAR, Section 4.3.10.5 System Evaluation

PT PSAR, Section 4.3.10.5 (paragraph 1, sentence 5, page 4-23) currently states in part:

“The BOF system includes three independent ITS 4.16 KV switchgears, which are backed up by three EDGs.”

The proposed amendment would change Section 4.3.10.5 to read:

“The BOF system includes two independent ITS 4.16 KV switchgears, which are backed up by two EDGs.”

Evaluation (acceptable): The proposed change deletes Train C and modifies associated electrical equipment arrangements. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to PT PSAR Section 4.3.10.5 are acceptable because they are consistent with the design change as described above.

3.2.8 Proposed Changes to PT PSAR, Section 5.5.1 Limiting Condition for Operation – C5 Area Ventilation Exhaust System Operability

PT PSAR, Section 5.5.1, (page 5-6, paragraph 2, bullets 1 and 2, paragraph 3, bullet 2) currently states in part:

- “Three C5V exhaust system fans and their associated safety controls instrumentation systems (including instrumentation to perform automatic switchover to the standby fan on detection of low-low flow and interlocks to maintain C3/C5 cascade flow) shall be operable.
- Two C5V exhaust system fans shall be operating to direct aerosols through HEPA filters and to the exhaust stack.”
- “Periodic verifications that two C5V exhaust system fans are operating.”

The proposed amendment would change the text to read:

- “Four C5V exhaust system fans, configured in two fan pairs, and their associated safety controls instrumentation systems (including instrumentation to perform automatic switchover to the standby fan pair on detection of low-low flow and interlocks to maintain C3/C5 cascade flow) shall be operable.
- One pair of C5V exhaust system fans shall be operating to direct aerosols through HEPA filters and to the exhaust stack.”
- “Periodic verifications that one pair of C5V exhaust system fans are operating.”

Evaluation (acceptable): The changes above are administrative and reflect modifying the design from a three fan system to a four fan system. The change is acceptable because the two fan pairs meet the redundancy requirements described in SRD Safety Criterion 4.1-1 including its implementing codes and standards.

3.2.9 Proposed Changes to PT PSAR, Appendix A Pretreatment Construction Authorization Hazards Assessment Report

PT PSAR, Appendix A (Page A-3, CSD-PC5V/N0017, Hazardous Situation Column) currently states:

“Three fans located in separate fire areas. Each fan 50% capacity.”

The proposed amendment would change the text to read:

“Redundant fans located in separate fire areas.”

PT PSAR, Appendix A (Page A-72, CSD-PPVV/N0009, Hazardous Situation Column) currently states:

“Three fans located in separate fire areas. Each fan 100% capacity.”

The proposed amendment would change the text to read:

“Redundant fans located in separate fire areas.”

PT PSAR, Appendix A (Page A-72, CSD-PPVV/N0016, Hazardous Situation Column) currently states:

“Maintain control by three independent electrical bus systems and three emergency diesel generators.”

The proposed amendment would change the text to read:

“Maintain control by redundant independent electrical bus systems.”

Evaluation (acceptable): These PSAR changes are administrative and are for the purpose of aligning these sections of the PSAR with changing three trains of 50 percent capacity fans each with two redundant trains each with two 50 percent capacity fans, evaluated as acceptable in other sections above. The reviewers found the change acceptable because redundancy requirements described in SRD Safety Criterion 4.5-5 and 4.4-4, including their implementing codes and standards, are met.

3.3 Proposed Changes to HLW PSAR

The following subsections outline specific changes to the HLW PSAR with respect to deletion of SSCs related to Train C of the ITS electrical power system.

3.3.1 Proposed Changes to HLW PSAR, Section 2.8.2 Standby and Emergency Electric Power Systems

HLW PSAR, Section 2.8.2 (last paragraph, first sentence, page 2-70) currently states in part:

“Emergency power is provided from three 4.16 kV diesel generators that start and acquire loads automatically”

The proposed amendment would change the text to read in part:

“Emergency power is provided from two 4.16 kV diesel generators that start and acquire loads automatically”

Evaluation (acceptable): The proposed change deletes the third emergency diesel generator corresponding to electrical power Train C. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to HLW PSAR Section 2.8.2 are acceptable because they are consistent with the design change as described above.

3.3.2 Proposed Changes to HLW PSAR, Section 4.3.12 Emergency Electric Power

HLW PSAR, Section 4.3.12 (paragraph 1, page 4-26) currently states in part:

“For normal SDC operation, the 4.16 kV SDC power is provided by BOF from three independent 4.16 kV EDG switchgears supplied by three independent 13.84/4.16 kV step down transformers from the BOF main 13.8 kV switchgears. Upon loss of off-site power, three independent 4.16 kV emergency diesel generators (EDG) provide SDC power to the three independent 4.16 kV EDG switchgears”

The proposed amendment would change the text to read in part:

“For normal SDC operation, the 4.16 kV SDC power is provided by BOF from two independent 4.16 kV EDG switchgears supplied by two independent 13.84/4.16 kV step down transformers from the BOF main 13.8 kV switchgears. Upon loss of off-site power, two independent 4.16 kV emergency diesel generators (EDG) provide SDC power to the two independent 4.16 kV EDG switchgears”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of independent 4.16kV EDG switchgears, the number of step down transformers, and the number of EDGs. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable

because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to HLW PSAR Section 4.3.12 are acceptable because they are consistent with the design change as described above.

3.3.3 Proposed Changes to HLW PSAR, Section 4.3.12.2 System Description

HLW PSAR, Section 4.3.12.2 (first paragraph, pages 4-26 and 4.27) currently states:

“The emergency power (SDC) for HLW is provided from BOF via three independent 4.16 kV feeds in duct bank. The 4.16 kV emergency power is backed by three independent EDGs if normal power to the three emergency 4.16 kV buses is lost. The BOF 4.16 kV feed terminate at HLW ITS Load Centers in the HLW Annex floor (elevation 0 ft). These load centers transform 4.16 kV to 480 V and distribute SDC power to motor control centers and larger loads. The three load centers and motor control centers are in separate fire rated rooms. The three emergency power channels are A, B, and C.”

The proposed amendment would change the text to read:

“The emergency power (SDC) for HLW is provided from BOF via two independent 4.16 kV feeds in duct bank. The 4.16 kV emergency power is backed by two independent EDGs if normal power to the two emergency 4.16 kV buses is lost. The BOF 4.16 kV feeds terminate at HLW ITS Load Centers in the HLW Annex floor (elevation 0 ft). These load centers transform 4.16 kV to 480 V and distribute SDC power to motor control centers and larger loads. The two load centers and motor control centers are in separate fire rated rooms. The two emergency power channels are A and B.”

HLW PSAR, Section 4.3.12.2 (last paragraph, first sentence, page 4.27) currently states in part:

“ITS DC power is available from three 125 VDC batteries assigned as ITS-A, ITS-B, and ITS-C that are maintained on a continuous float charge by a dedicated charger/rectifier”

The proposed amendment would change the text to read:

“ITS DC power is available from two 125 VDC batteries assigned as ITS-A and ITS-B that are maintained on a continuous float charge by a dedicated charger/rectifier”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of independent 4.16kV feeds, the number of load centers, the number of motor control centers, the number of 125 VDC batteries and the number of EDGs. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly

increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to HLW PSAR Section 4.3.12.2 are acceptable because they are consistent with the design change as described above.

3.3.4 Proposed Changes to HLW PSAR, Section 4.3.12.5 System Evaluation

HLW PSAR, Section 4.3.12.5 (first paragraph, second sentence, page 4-27) currently states in part:

“... Emergency power is provided to the HLW load centers by three independent ITS unit substations, which are backed by three emergency diesel generators”

The proposed amendment would change the text to read in part:

“... Emergency power is provided to the HLW load centers by two independent ITS unit substations, which are backed by two emergency diesel generators”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of independent ITS load centers. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to HLW PSAR Section 4.3.12.5 are acceptable because they are consistent with the design change as described above.

3.3.5 Proposed Changes to HLW PSAR, Section 5.5.12 Limiting Conditions for Operation – Safety Design Class Electric Power Operability

HLW PSAR, Section 5.5.12 (second paragraph, last bullet, page 5-18) currently states in part:

“HLW SDC DC power - The DC power supply system is made up of three 125VDC batteries (sealed) assigned to HLW load groups A and B and SDC load groups A, B, and C”

The proposed amendment would change the text to read in part:

“HLW SDC DC power - The DC power supply system is made up of two 125VDC batteries (sealed) assigned to HLW load groups A and B and SDC load groups A and B”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of 125 VDC batteries. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to HLW PSAR Section 5.5.12 are acceptable because they are consistent with the design change as described above.

3.4 Proposed Changes to BOF PSAR

The following subsections outline specific changes to the BOF PSAR with respect to deletion of SSCs related to Train C of the ITS electrical power system.

3.4.1 Proposed Changes to BOF PSAR, Section 2.4.2 Emergency Diesel Generator

BOF PSAR, Section 2.4.2 (first paragraph, third sentence, page 2-3) currently states in part:

“... The diesel generators (three ITS emergency and three standby) are secured to their respective pads.”

The proposed amendment would change the text to read in part:

“.... The diesel generators (two ITS emergency and three standby) are secured to their respective pads”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of ITS emergency diesel generators. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 2.4.2 are acceptable because they are consistent with the design change as described above.

3.4.2 Proposed Changes to BOF PSAR, Section 2.8.4 Emergency Diesel Generator

BOF PSAR, Section 2.8.4 (first paragraph, last two sentences and bullets, page 2-6) currently states in part:

“... Figure 2A-3 shows the three trains of ITS equipment. There are three independent and redundant trains of ITS power systems in the ITS switchgear building.

- Three sets of ITS 4.16 kV switchgears
- Three sets of ITS 480 V MCCs
- Three sets of ITS 125 V DC systems
- Three sets of ITS UPS systems”

The proposed amendment would change the text to read in part:

“... Figure 2A-3 shows the two trains of ITS equipment. There are two independent and redundant trains of ITS power systems in the ITS switchgear building.

- Two sets of ITS 4.16 kV switchgears
- Two sets of ITS 480 V MCCs
- Two sets of ITS 125 V DC systems
- Two sets of ITS UPS systems”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of independent 4.16kV EDG switchgears, the number of 480 V MCCs, the number of 125 V DC systems and the number of UPS systems. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 2.8.4 are acceptable because they are consistent with the design change as described above.

3.4.3 Proposed Changes to BOF PSAR, Section 2.8.5 Uninterruptible Power Supply Systems

BOF PSAR, Section 2.8.5 (third paragraph, first sentence, page 2-7) currently states in part:

“A minimum of two UPS systems will be provided per process building (one per load group, specifically, A and B), three ITS UPS systems in the ITS switchgear building (one per EDG) and two non-ITS UPS systems in the BOF switchgear building”

The proposed amendment would change the text to read in part:

“A minimum of two UPS systems will be provided per process building (one per load group, specifically, A and B), two ITS UPS systems in the ITS switchgear building (one per EDG) and two non-ITS UPS systems in the BOF switchgear building”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of ITS UPS systems in the ITS switchgear building. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an

electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 2.8.5 are acceptable because they are consistent with the design change as described above.

3.4.4 Proposed Changes to BOF PSAR, Section 3.3.3.4 ITS Switchgear Building

BOF PSAR, Section 3.3.3.4 (first paragraph, second sentence, page 3-6) currently states in part:

“... It contains the three trains of ITS switchgear equipment to step-down, distribute, and control ITS emergency power from the emergency diesel generators”

The proposed amendment would change the text to read in part:

“... It contains the two trains of ITS switchgear equipment to step-down, distribute, and control ITS emergency power from the emergency diesel generators”

BOF PSAR, Section 3.3.3.4 (third paragraph, last sentence, page 3-6) currently states in part:

“... The ITS switchgear facility is designed with three distinct trains so that a single active failure will not prevent the ITS switchgear facility from performing its safety functions.”

The proposed amendment would change the text to read in part:

“... The ITS switchgear facility is designed with two distinct trains so that a single active failure will not prevent the ITS switchgear facility from performing its safety functions.”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of trains of ITS switchgear, step-down and distribution equipment. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 3.3.3.4 are acceptable because they are consistent with the design change as described above.

3.4.5 Proposed Changes to BOF PSAR, Section 3.3.3.5 Diesel Generator Facility

BOF PSAR, Section 3.3.3.5 (first paragraph, second sentence, page 3-7) currently states in part:

“... The diesel generator facility consists of seven diesel generators (three ITS emergency and three standby)”

The proposed amendment would change the text to read in part:

“... The diesel generator facility consists of five diesel generators (two ITS emergency and three standby)”

Evaluation (conditionally acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number ITS emergency diesel generators. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 3.3.3.5 are acceptable because they are consistent with the design change as described above.

3.4.6 Proposed Changes to BOF PSAR, Section 4.3.1.2 Functional Requirements

BOF PSAR, Section 4.3.1.2 (last sentence, page 4-1) currently states in part:

“... The emergency power system will have three redundant independent trains.”

The proposed amendment would change the text to read in part:

“... The emergency power system will have two redundant independent trains.”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of redundant independent trains for the emergency power system. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 4.3.1.2 are acceptable because they are consistent with the design change as described above.

3.4.7 Proposed Changes to BOF PSAR, Section 4.3.3.2 Functional Requirements

BOF PSAR, Section 4.3.3.2 (last sentence, page 4-4) currently states in part:

“...The emergency power system, which includes the UPS, will have three redundant independent trains.”

The proposed amendment would change the text to read in part:

“...The emergency power system, which includes the UPS, will have two redundant independent trains.”

Evaluation (acceptable): The proposed change eliminates electrical power Train C and correspondingly modifies from three to two the number of redundant independent trains for the emergency power system. Train C loads will be transferred to ITS Trains A and B and the load carrying capability of Trains A and B, including associated EDGs will be correspondingly increased. This change is acceptable because the redundancy and other requirements for an electrical power system described in SRD Safety Criterion 4.4-4, including its implementing codes and standards, are met by ITS Trains A and B.

Proposed changes to BOF PSAR Section 4.3.3.2 are acceptable because they are consistent with the design change as described above.

3.4.8 Proposed Changes to BOF PSAR, Section 4.4.1.4 System Evaluation

BOF PSAR, Section 4.4.1.4 (second sentence, page 4-10) currently states in part:

“... Each train of the ITS switchgear will be separated and have a dedicated heating/cooling system so that the loss of one system will not impact the other two ITS switchgear trains.”

The proposed amendment would change the text to read in part:

“... Each train of the ITS switchgear will be separated and have a dedicated heating/cooling system so that the loss of one system will not impact the other ITS switchgear trains.”

Evaluation (acceptable): This change is administrative as it aligns this section of the PSAR with changes evaluated above. This change is acceptable because it meets the redundancy requirements described in SRD Safety Criterion 4.4-4 and 4.5-5, including their implementing codes and standards.

3.4.9 Proposed Changes to BOF PSAR, Section 5.5.3 Limiting Condition for Operation – BOF Emergency Electric Power

BOF PSAR, Section 5.5.3 (last paragraph, second sentence, page 5-5) currently states in part:

“...The emergency electrical power facilities include three diesel generator power systems.”

The proposed amendment would change the text to read in part:

“...The emergency electrical power facilities include two diesel generator power systems.”

Evaluation (acceptable): This change is administrative as it aligns this section of the PSAR with changes approved above. See evaluation for Section 3.4.1 above.

4.0 CONCLUSION

On the basis of the considerations described above, the ORP has concluded there is reasonable assurance that the health and safety of the public, the workers and the environment will not be adversely affected by the changes proposed by ABAR 24590-WTP-ABAR-ENS-03-050. The proposed changes to GI PSAR, Sections 2.8.1.1.2, 2.8.1.1.4, 2.8.2.5, and 2.8.3.11; PT PSAR, Sections 2.8.1, 2.8.2, 2.8.3, 4.3.2.2, 4.3.2.3, 4.3.2.5.3, 4.3.10.2.1, 4.3.10.5, 5.5.1, and Appendix A; HLW PSAR, Sections 2.8.2, 4.3.12, 4.3.12.2, 4.3.12.5, and 5.5.12; and BOF PSAR, Sections 2.4.2, 2.8.4, 2.8.5, 3.3.3.4, 3.3.3.5, 4.3.1.2, 4.3.3.2, 4.4.1.4, and 5.5.3, do not constitute a significant reduction in commitment or effectiveness relative to the design, construction, and operation of the ITS emergency power system. Accordingly, the proposed changes are acceptable and the ORP approves the amendments as proposed in ABAR 24590-WTP-ABAR-ENS-03-050, Revision 0, with no conditions.